DOCUMENT RESUME

ED 302 750 CG 021 338

AUTHOR Bishop, George D.
TITLE Cognitive Representations of Physical Diseases.
PUB DATE 13 Aug 88
NOTE 15p.; Paper presented at the Annual Meeting of the American Psychological Association (96th, Atlanta, GA, August 12-16, 1988).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Acquired Immune Deficiency Syndrome; *Cognitive Processes; *Communicable Diseases; *Diseases; Higher Education; *Lay People; Undergraduate Students

ABSTRACT

Recent research in lay conceptions of physical illness has indicated that lay people understand physical illness through the use of illness schemas. These schemas are thought to include at least five components: identity, cause, time line, consequences, and cure. This research examined two of these components, cause and consequences, through the use of multidimensional scaling. Undergraduate students (N=132) completed questionnaires by rating 18 different diseases as to their similarity and on 18 different characteristics. Subjects were assigned to different conditions and were asked to rate the diseases as to how similar they were in general terms or in terms of what causes them, how one gets them, or in terms of their consequences. The results point to dimensions in use by people when thinking about these aspects of disease and also contribute to an understanding of lay responses to different diseases. The findings have implications for understanding lay views about Acquired Immune Deficiency Syndrome and its perceived relationship with other viral diseases. (Author/NB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED302750

Cognitive Representations of Physical Diseases

George D. Bishop

University of Texas at San Antonio

CG 021338

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

✓ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
George D. Bishop

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Address correspondence to:

George D. Bishop
Division of Behavioral and Cultural Sciences
University of Texas at San Antonio
San Antonio, TX 78285

Poster presented at the 1988 Annual Convention of the American Psychological Association, Atlanta, GA, August 13, 1988.

BEST COPY AVAILABLE

Cognitive Representations of Physical Diseases

George D. Bishop
University of Texas at San Antonio

Abstract

Recent research in lay conceptions of physical illness has indicated that lay people understand physical illness through the use of illness schemas. These schemas are thought to include at least five components: identity, cause, time line, consequences, and cure. This research examined two of these components, cause and consequences, through the use of multidimensional scaling. The results point to dimensions in use by people when thinking about these aspects of disease and also contribute to an understanding of lay responses to different diseases. In particular, the case of AIDS and its perceived relationship with other viral diseases is discussed.

Cognitive Representations of Physical Diseases

George D. Bishop
University of Texas at San Antonio

Recently there has been considerable interest in the ways in which lay people cognitively represent physical diseases. For example, Leventhal and his colleagues (Leventhal, Meyer, & Nerenz, 1980; Leventhal, Nerenz, & Straus, 1982) have argued that people's efforts at coping with physical disease and its treatment are guided by illness schemas which contain the person's cognitive understanding of various aspects of the illness. Bishop and Converse (1986) have argued that these representations take the form of disease "prototypes". Both Leventhal and Bishop present evidence that these illness representations contain several components. Specifically, five components have been identified: 1) identity (including the disease label and symptoms), 2) cause, 3) time line (i.e., disease duration and course), 4) consequences, and 5) cure (see also Lau & Hartman, 1983; Bishop, et al, 1987). The research reported here was designed to further explore lay understandings of physical diseases by examining two of these components: cause and consequences. Multidimensional scaling (MDS) was used to examine perceived relationships between diseases for these two components.

Method

Subjects. One hundred and thirty two undergraduate psychology students participated in this research for course credit.

Materials. Data for this study were obtained using questionnaires which asked subjects to rate 18 different diseases as to their similarity as well as on 18 different characteristics. Diseases rated are listed in Table 1 while Table 2 lists the rating

---

Insert Tables 1 and 2 about here.

---

scales. For the similarity ratings subjects were presented with all possible pairs of the 18 diseases and asked to indicate on a 7-point scale the extent to which two diseases were perceived to be similar. For making these ratings subjects were given one of four sets of instructions. The "Cause" group was instructed to rate the diseases as to how similar they were "in terms of what causes them". The "Get" group was instructed to rate the diseases for similarity "in terms of how one gets them. The "Consequences" group was asked to rate the diseases for similarity "in terms of their consequences". Finally, a control condition was instructed to rate the diseases on similarity without further specification. The Cause and Get instructions were designed to investigate two

aspects of the "cause" component of illness representations while the Consequences instructions were used to investigate the "consequences" component. Ratings of disease characteristics were made in a separate questionnaire, filled out by all subjects, which asked subjects to rate the diseases on 7-point bi-polar scales anchored with the adjectives listed in Table 1.

Results

MDS analyses were performed using the ALSCAL program (Takane, Young, & de Leeuw, 1977). Separate analyses were run for each instruction group. To investigate potential individual differences in disease perceptions the INDSCAL option was used. Kruskal's stress and R^2 were examined for all dimensionalities from 2 to 6 for each instruction group to determine which level of dimensionality was optimal for representing subjects' perceptions. The meaning of the dimensions obtained were then interpreted by regressing each disease trait rating onto the solutions obtained.

Cause. The results for the Cause group indicated that a four dimensional solution was optimal (stress = .246, R^2 = .245). The dimensions obtained in this solution are plotted in Figures 1 and 2. Examination of the regressions for disease traits suggests

---

Insert Figures 1 and 2 about here.

---

that subjects were rating the diseases according to the extent to which they perceived it to be: related to stress (R^2 = .96), caused by a virus (R^2 = .94), inheritable (R^2 = .90), contagious (R^2 = .87), caused by the environment (R^2 = .77) and related to behavior (R^2 = .76).

Get. Analyses of data from the Get group revealed that a three dimensional solution was optimal (stress = .274, R^2 = .384). These dimensions are plotted in Figures 3 and 4. Multiple

---

Insert Figures 3 and 4 about here.

---

regression analysis indicated that the subjects appeared to be organizing the diseases in terms of their perceptions as to the extent to which the diseases were: related to behavior (R^2 = .94), inheritable (R^2 = .92), caused by a virus (R^2 = .91), contagious (R^2 = .88) and related to stress (R^2 = .86).

Consequences. Examination of the MDS analyses for the Consequences group indicated that a three dimensional solution adequately represented the data (stress = .279, R^2 = .273). These dimensions are plotted in Figures 5 and 6. Regression analysis

---
Insert Figures 5 and 6 about here.
---

of the disease trait ratings suggests that subjects were ratings the diseases in terms of their perceptions of the diseases as: serious (R^2 = .88), fearful (R^2 = .85), inheritable (R^2 = .85) and life threatening (R^2 = .84).

Control. MDS analyses for the control group indicated that a four dimensional solution was optimal (stress = .246, R^2 = .245). Examination of the regression analyses for the disease trait ratings indicated that subjects in this group were rating the diseases according to the extent to which they were perceived to be: inheritable (R^2 = .85), related to stress (R^2 = .83), caused by a virus (R^2 = .83), contagious (R^2 = .76), curable (R^2 = .74), easy to get (R^2 = .74) and fearful (R^2 = .72).

Discussion

The results of this study contribute to our understanding of lay illness representations by exploring further two of the components of illness representations identified in previous research: cause and consequences. The results reported above point to some of the dimensions spontaneously used by people in thinking about these aspects of disease.

It is also of interest to note the location of specific diseases on the dimensions and in the ratings obtained. In particular, we were interested in how our subjects rated AIDS relative to other diseases. Recently there has been considerable concern about this disease not only from the standpoint of medical aspects of the disease but also in terms of the fear it generates. The analyses reported above shed light on some of the reasons for this fear. Specifically, the results for the Get instructional group indicate that subjects appeared to be organizing diseases by the extent to which they are perceived to be contagious or caused by a virus. It will also be noted that in this analysis AIDS tended to cluster with cold, genital herpes and mononucleosis in terms of how one gets it (see Figure 4). While the similarity to genital herpes is clearly related to the nature of the disease, the clustering with cold and mononucleosis seems to indicate that despite repeated assurances to the contrary, our subjects still harbor the suspicion that AIDS, as a viral disease, is transmitted like other viruses, i.e., through casual contact. Other indicators of this come from disease trait ratings where AIDS was rated as nearly as contagious as a cold (M = 6.39 vs. 6.58, AIDS vs. cold, respectively), only slightly more preventable (M = 4.44 vs. 4.30) and nearly as easy to get (M = 5.73 vs. 6.45).

References

Bishop, G.D., Briede, C., Cavazos, L., Grotzinger, R. & McMahon, S. (1987). Processing illness information: The role of disease prototypes. Basic and Applied Social Psychology, 8, 21-43.

Bishop, G.D. & Converse, S.A. (1986). Illness representations: A prototype approach. Health Psychology, 5, 95-114.

Lau, R.R. & Hartman, K.A. (1983). Common sense representations of common illnesses. Health Psychology, 2, 167-186.

Leventhal, H., Meyer, D. & Nerenz, D. (1980). The common sense representation of illness danger. In S. Rachman (Ed.), Contributions to medical psychology, Vol. 2. Oxford: Pergamon Press. Pp. 7-30.

Leventhal, H., Nerenz, D. & Straus, A. (1982). Self-regulation and the mechanisms of symptom appraisal. In D. Mechanic (Ed.), Symptoms, illness behavior, and help-seeking. New York: Prodist. Pp. 55-86.

Takane, Y., Young, F.W., & de Leeuw, J. (1977). Nonmetric individual differences multidimensional scaling with optimal scaling features. Psychometrika, 42, 7-67.

Table 1

Diseases Used in Study
(Alphabetical order)

Acquired Immune Deficiency Syndrome (AIDS)
Arthritis
Chicken Pox
Cold
Diabetes
Epilepsy
Flu
Genital Herpes
Heart Attack
Hypertension
Malaria
Mononucleosis
Pneumonia
Polio
Schizophrenia
Stomach Cancer
Stroke
Tonsillitis

Table 2

Disease Trait Scales

Fearful
Controllable
Easy to Get
Painful
Inherited
Caused by Environment
Common
Life Threatening
Contagious
Easily Prevented
Related to Stress
Requires a Doctor's Attention
Well Understood
Serious
Related to Behavior
I am Likely to Get it
Caused by Virus
Easily Cured

Figure 1

Plot of Dimensions 1 and 2

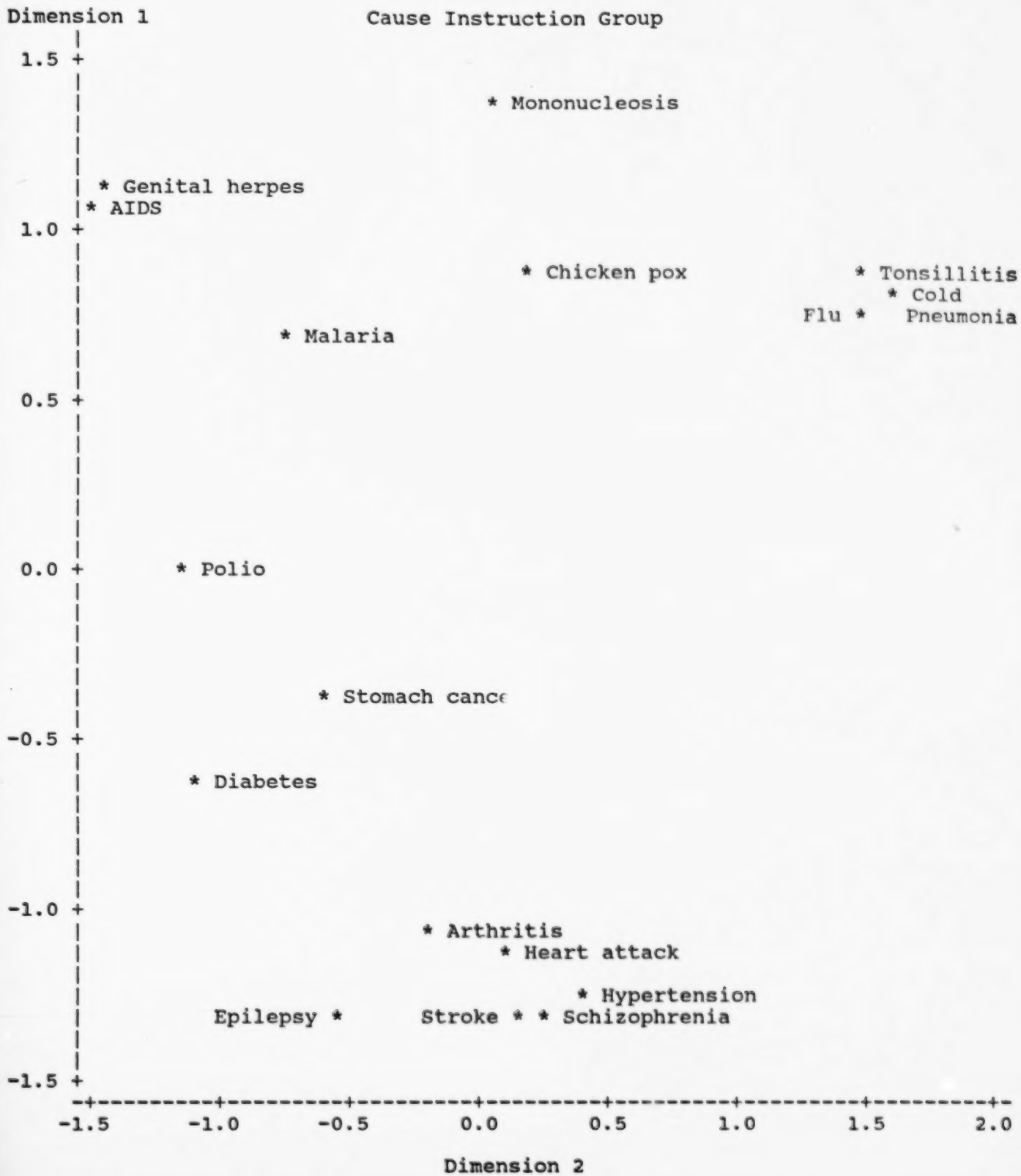

Figure 2

Plots of Dimension 3 and 4

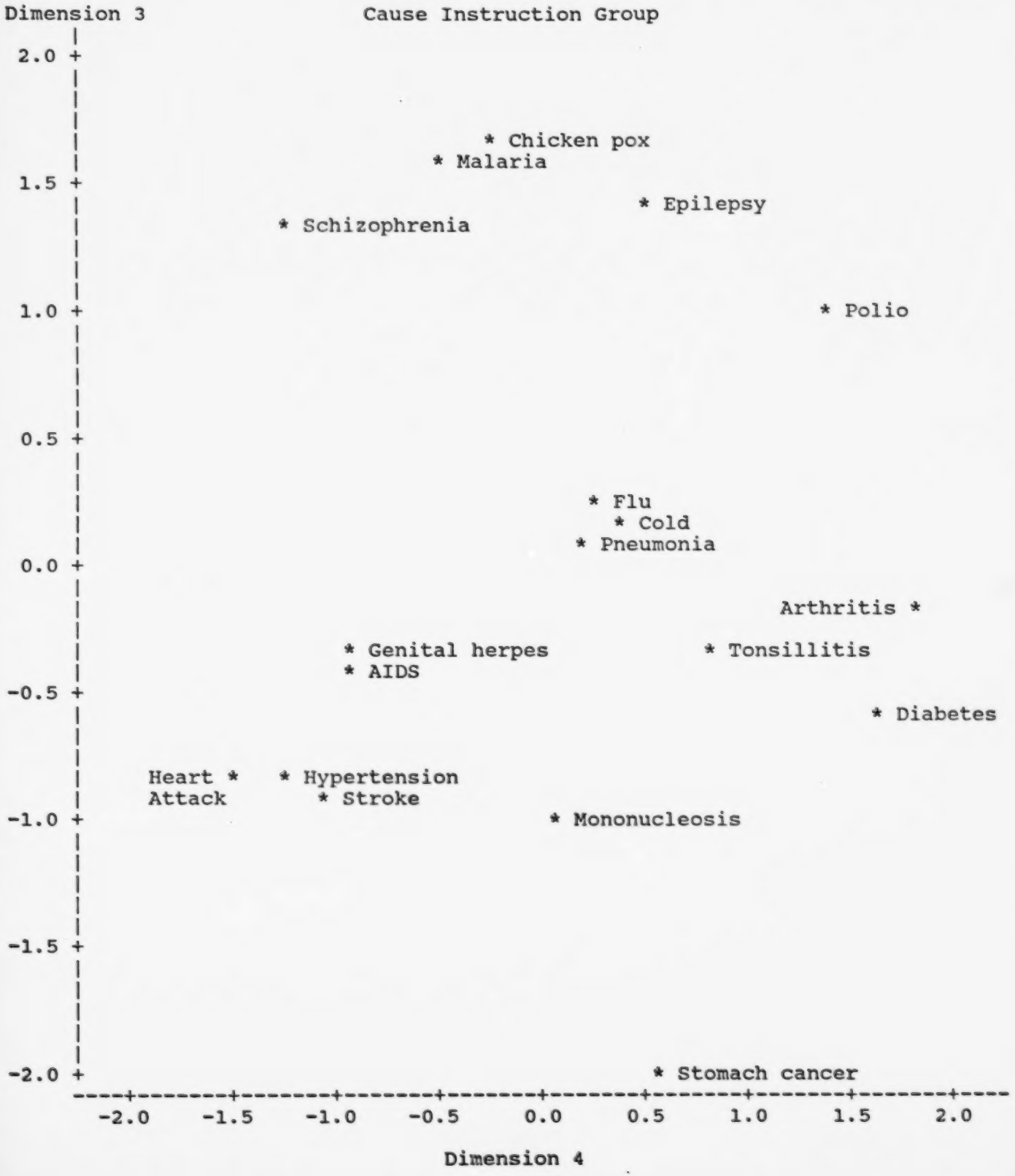

Figure 3

Plot of Dimensions 1 and 2

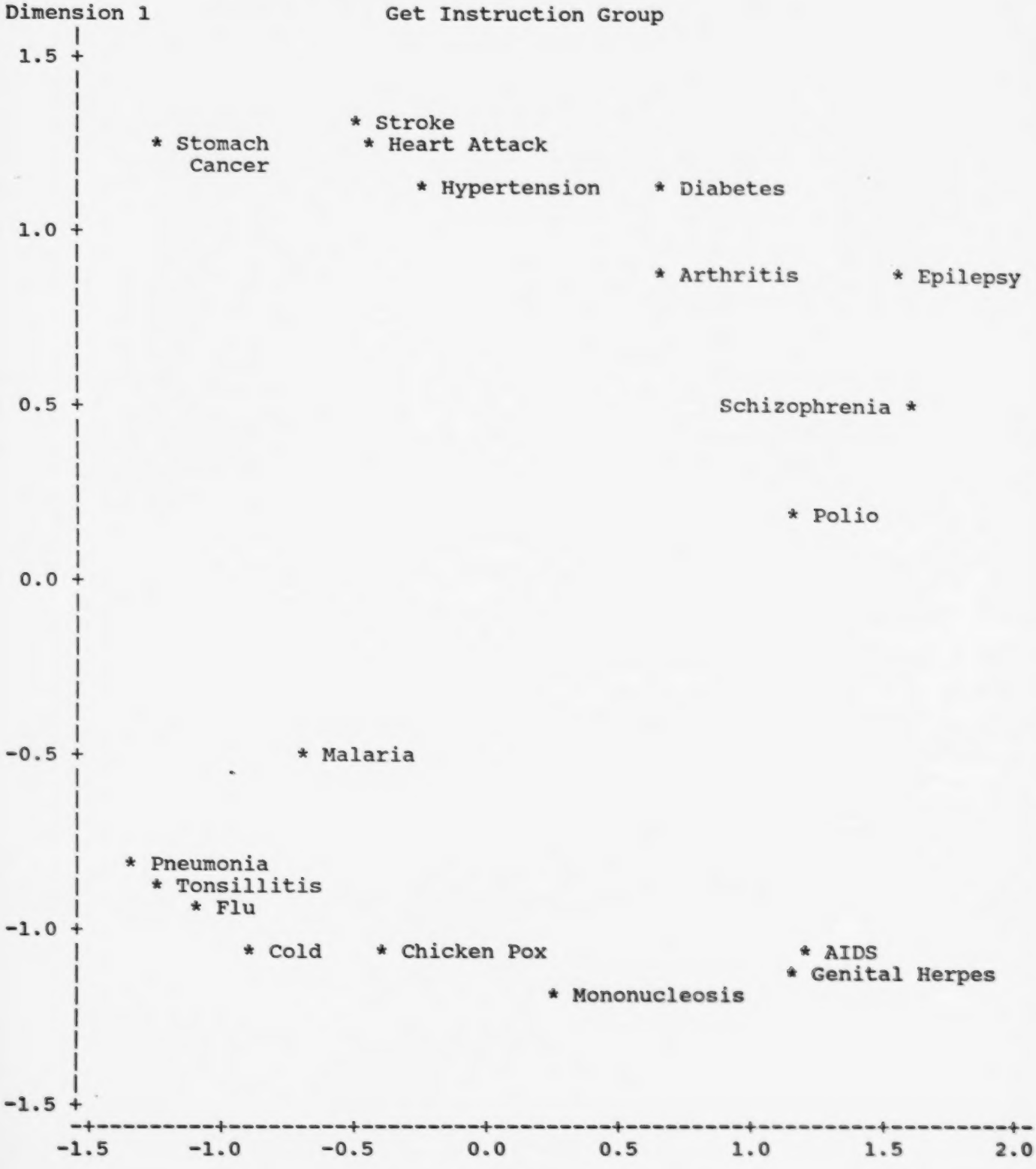

Figure 4

Plot of Dimensions 1 and 3

Get Instruction Group

Figure 5

Plot of Dimensions 1 and 2

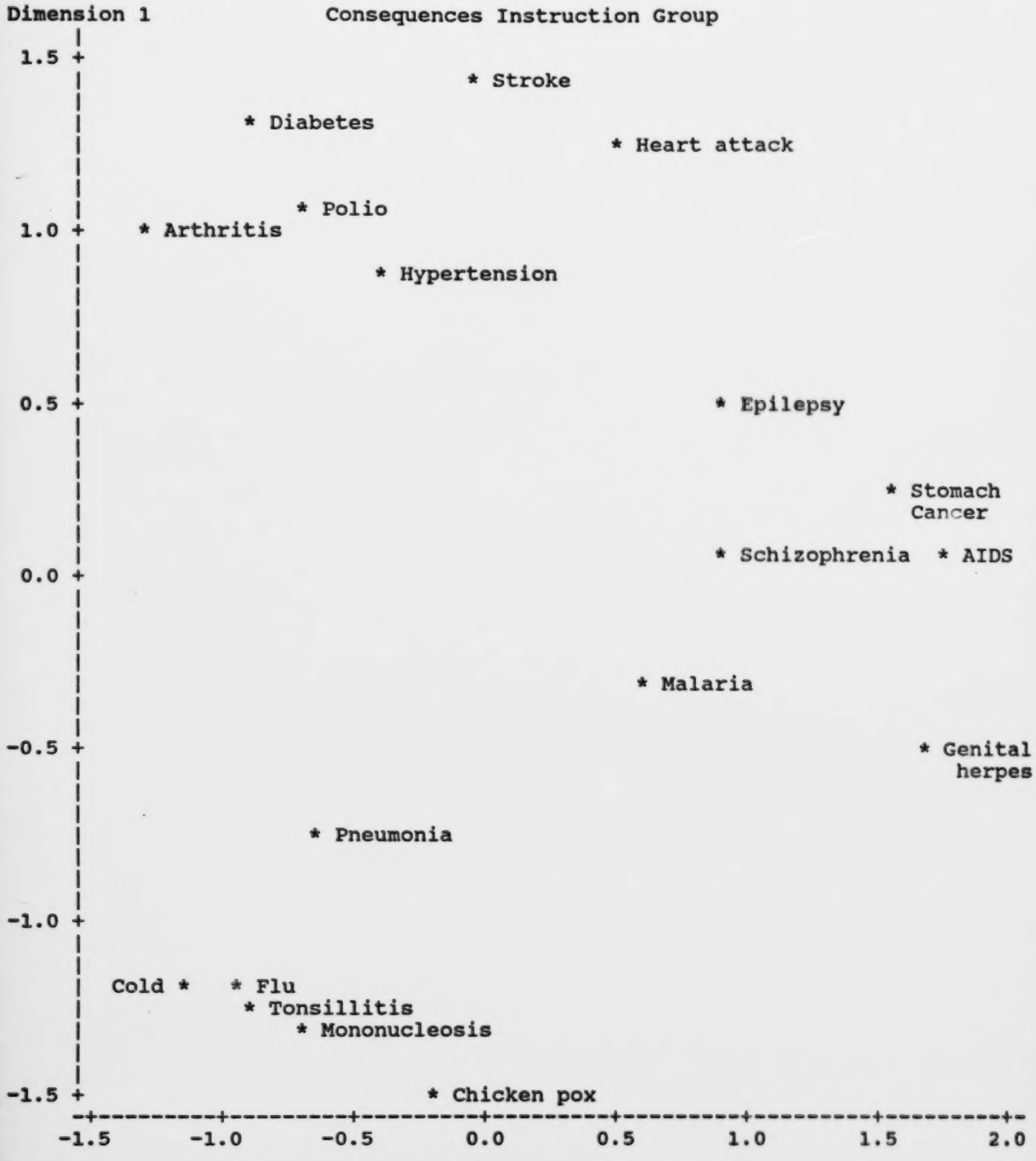

Figure 6

Plot of Dimensions 1 and 3